

**REMARKS*****Request to Restart Response Period***

In response to the Office Action of December 10, 2001, Applicants filed a Notice of Incomplete Office Action and Request to Restart the Response Period. The Request was filed by certificate of first class mail under 37 C.F.R. § 1.8 on January 10, 2002. As noted in the Request, the original Office Action referenced prior art made of record but no Patent Office list was provided.

When the citation of a reference in an Office Action is incorrect and Applicant calls the error to the attention of the Office within *1 month* of the mail date of the office action, the Office is to restart the previously set period for reply to run from the date the error is corrected, if requested to do so by the Applicant. (MPEP 710.06, emphasis added). The original Office Action was mailed on December 10, 2001, and Applicant filed the Request on January 10, 2002, by certificate of first class mail, within 1 month of the mail date of the Office Action. Accordingly, the Office should have restarted the period for reply with the Official Paper of August 27, 2002, providing corrective action.

Nevertheless, in an effort to expedite prosecution, Applicant submits the foregoing amendments and the following remarks within the 1 month period for reply provided in the Official Paper of August 27, 2002. However, Applicant expressly reserves the right to any extension of patent term due and expressly disputes any reduction in patent term as a result of the original incomplete Office Action and timely filed Request to Restart Response Period.

***Status of the Claims***

Claims 2-4, 7-11, 16-18, and 24-30 are pending with claim 24 being independent. Claims 1, 5, 6, 12-15, and 19-23 have been cancelled without prejudice to or disclaimer of the subject matter contained therein. Without conceding the propriety of the rejections, claims 2, 11, 16-18, 24, and 29 have been amended to even more clearly recite and distinctly claim Applicant's invention and to pursue an early allowance. Support for the amendments can be found in the original claims, as well as throughout the specification. Therefore, no new matter has been added.

Applicant respectfully requests the Examiner to reconsider and withdraw the outstanding rejections in view of the foregoing amendments and the following remarks.

***The Present Invention***

The present invention is directed to a process for hydroconversion of a Fischer-Tropsch hydrocarbon stream including oxygenates and hydrocarbon unsaturates with reduction in formation of heavy molecular weight products during heating. The process comprises adding a first hydrogen-containing gas to the hydrocarbon stream sufficient to reduce the amount of heavy molecular weight products formed during heating as compared to a heated hydrocarbon stream without added hydrogen, to form a mixed stream. The mixed stream is heated. To the heated mixed stream is added a second hydrogen-containing gas sufficient to effect hydroconversion of the mixed stream, to form a hydroconversion feed stream. The hydroconversion feed stream is heated to reaction temperature, and the hydroconversion feed stream is hydroconverted.

***Specification***

The specification is object to as failing to provide proper antecedent basis for claimed subject matter. The Specification has been amended as provided above to recite subject matter in the originally filed claims. No new matter has been added. Accordingly, Applicant respectfully requests withdrawal of this objection.

***Claim Rejections under 35 U.S.C. § 112, Second Paragraph***

Claims 5, 6, and 12-14 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Without conceding the propriety of the rejection, claims 5, 6, and 12-14 have been cancelled, thus rendering the rejection moot.

***Claim Rejections under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a)***

Claims 1, 2, 5, 6, 11-15, and 19-23 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Smith et al.

(U.S. Patent No. 4,544,792). Claims 3, 4, 7-10, and 16-18 are rejected under 35 U.S.C. § 103(a) as being obvious over Smith et al. (U.S. Patent No. 4,544,792). Applicant respectfully disagrees with the rejections; therefore, the rejections are respectfully traversed.

Smith et al. is directed to a process for converting olefinic feedstock, such as synthol olefinic liquid product of Fischer-Tropsch synthesis, to distillate hydrocarbons. The process of Smith et al. comprises contacting the feedstock at elevated temperature and pressure with acid zeolite conversion catalyst in the presence of hydrogen to oligomerize olefins and convert oxygenated hydrocarbons. (Abstract). As shown in Figures 1 and 2, a single stream of hydrogen is cofed to the reactor zone. Smith teaches that the cofed hydrogen is useful in extending the life of the acid zeolite catalyst by inhibiting coke formation on the catalyst due to oxygenate conversion. (Col. 2, lines 31-34). The amount of cofed hydrogen sufficient to inhibit coke formation on the catalyst may be as little as 1 mole % hydrogen and is usually less than 50 mole % hydrogen to avoid diluting the olefinic feed components. (Col. 2, lines 56-64).

In contrast, the present invention relates to a process for hydroconversion of a Fischer-Tropsch hydrocarbon stream with a reduction in formation of heavy molecular weight products during heating. (Claim 24). This reduction in formation of heavy molecular weight products during heating protects the pre-heat equipment in the hydroconversion process. (Specification page 2, lines 20-23). The pre-heat equipment includes shell and tube heat exchangers, furnaces, and other equipment. (Specification page 2, lines 8-13).

In the process of the present invention a *first* hydrogen-containing gas is added to the hydrocarbon stream in an amount sufficient to reduce the amount of heavy molecular weight products formed during heating as compared to a heated hydrocarbon stream without added hydrogen, to form a mixed stream. After the mixed stream is heated, a *second* hydrogen-containing gas is added to the heated mixed stream sufficient to effect hydroconversion of the mixed stream, to form a hydroconversion feed stream. The second hydrogen-containing stream is added in a much greater amount than the first stream, for example, in an amount of more than 750 SCFB. In the process of the present invention, the hydroconversion feed stream is heated to reaction temperature, and the hydroconversion feed stream is hydroconverted.

It is respectfully submitted that the process of Smith et al. for catalytic oligomerization is significantly different than the process of the present invention for hydroconversion. It is respectfully submitted Smith et al. does not teach or suggest adding *two* hydrogen-containing streams at different points in the upgrading process. As Smith et al. does not teach each and every element of the claims, it cannot anticipate the presently claimed invention. Accordingly, withdrawal of the rejection under 35 U.S.C. § 102(b) is respectfully requested.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP § 2143.

It is respectfully submitted that Smith et al. does not teach or suggest all of the claim limitations. Smith et al. does not teach or suggest a process for hydroconversion nor does Smith teach or suggest adding *two* hydrogen-containing streams at different points in the upgrading process. In fact, the Examiner did not specifically address claims 24-30 and provides no support for the conclusion that the invention recited in these claims is obvious. Accordingly, withdrawal of the rejection under 35 U.S.C. §103 is respectfully requested.

### ***Conclusion***

Without conceding the propriety of the rejections, the claims have been amended, as provided above, to even more clearly recite and distinctly claim Applicant's invention and to pursue an early allowance. For the reasons noted above, the art of record does not disclose or suggest the inventive concept of the present invention as defined by the claims.

In view of the foregoing remarks, reconsideration of the claims and allowance of the subject application is earnestly solicited. The Examiner is invited to contact the undersigned

at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted,

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**Amendment dated September 20, 2002  
Marked up Claims 2, 11, 24, and 29**

2. The process according to claim 24, [1] wherein the oxygenates and unsaturates are selected from the group consisting of normal alcohols, mono-olefins, and mixtures thereof.

11. The process of claim 24 [1], wherein the Fischer-Tropsch hydrocarbon stream is a [Fischer-Tropsch] low-boiling fraction in a range from about -65°C to about 200°C.

16. The process of claim 24 [15], wherein the first hydrogen-containing gas is from a hydrogen production unit.

17. The process of claim 24 [15], wherein the first hydrogen-containing gas is recycled from a hydroprocessing operation.

18. The process of claim 24 [15], wherein the first hydrogen-containing gas is syngas.

24. A process for hydroconversion of a Fischer-Tropsch hydrocarbon stream including oxygenates and hydrocarbon unsaturates with reduction in formation of heavy molecular weight products during heating, the process comprising:

- a) adding a first hydrogen-containing gas to the hydrocarbon stream sufficient to reduce the amount of a heavy molecular weight products formed during heating as compared to a heated hydrocarbon stream without added hydrogen, to form a mixed stream;
- b) heating the mixed stream;
- c) adding a second hydrogen-containing gas to the heated mixed stream sufficient to effect hydroconversion of the mixed stream, to form a hydroconversion feed stream;
- d) heating the hydroconversion feed stream to reaction temperature; and
- e) hydroconverting the hydroconversion feed stream.

29. The process of claim 24, wherein the mixed stream is heated to a temperature in

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the range of from about 120°C to about 400 [300]°C.